

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2004/007021

International filing date (day/month/year)
29.06.2004

Priority date (day/month/year)
04.07.2003

International Patent Classification (IPC) or both national classification and IPC
C09B67/22

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/007021

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
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Box No. II Priority

1. ☒ The following document has not been furnished:
- ☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).
 - ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).
- Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-8
	No: Claims	
Inventive step (IS)	Yes: Claims	1-8
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

see form 210

Reference is made to the following documents:

D1: Derwent database WPI, AN=1992-245767[30] & JP-A- 4-164 969
& D1a: JP -A- 04 164 969 (japanese original document)
D2: Derwent database WPI, AN=1997-399775[37] & JP-A- 09-176 509
& D2a: JP -A- 09 176 509 (japanese original document)
D3: Derwent database WPI, AN=1998-463033[40] & JP-A- 10-195 328
& D3a: JP -A-10-195 328 (japanese original document)
D4: DE -A- 198 48 201
D5: EP -A- 0 621 320

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D6: Derwent database WPI, AN=2004-520447[50] & JP-A- 2004-168 950
& D6a: JP -A-2004-168 950 (japanese original document)

V. The present application seems to meet the criteria of Article 33(1) PCT with respect to novelty, inventivity and industrial applicability [Articles 33(2)(3)(4) PCT] vis à vis the disclosed documents D1-D5.

V.1. The problem underlying the current application can be formulated as 'providing blue disperse dyes with improved dyeing properties, especially for interior furnishing of automobiles'. Thereby the lightfastness esp. on polyester-based fibers of fine denier as well as on mixed fibers containing such polyesters should be improved.

V.1.1. D1/D1a provides disperse dye compositions with yellow, red and blue submixtures.

Thereby, in the blue composition, dyes falling under the formulas (1) and (2) are disclosed (see especially the pages 11 and 12 of D1a). The third critical blue component of formula (3), which is a para-methylsulfonyloxy-phenylamino substituted 1-hydroxyanthraquinone, is not disclosed in D1/D1a.

The technical problem mentioned resp. being solved by D1 is 'to obtain a composition which gives a dyed material of light to dense color, such as beige, brown, dark red, green or orange, excellent in light fastness under severe conditions'. Partially the same problem is solved by the compositions of D1/D1a.

The solution of the current applications requires the third component of formula (3) as a critical part in the blue mixture. A skilled person would not find in the teaching of

D1/D1a to introduce such an anthraquinone compound into the blue composition disclosed therein. The general formula VII of D1 shows a substitution on the left ring moiety of the anthraquinone ring and misses methylsulfonyloxy in the position of R9. Consequently, claim 1 is not obvious from D1/D1a.

V.1.2. More blue disperse dye mixtures combined with yellow and red dyes are disclosed in D2/D2a (dealing with dyeing of car interiors); D3/D3a (compositions giving good fastnesses on hydrophobic fibers); D4 (disperse dyes giving high dispersion stability, deep dyeings with cellulose 2 one half -acetate and good affinity for polyesters); D5 (disperse dye compositions giving excellent dyed prod. with no substantial colour difference between the fibres, even when used for dyeing a different denier polyester fibre).

In D2/D2a only the components (isomers) of formula (1) are disclosed.

D3/D3a discloses in a disperse dye mixture a blue compound of formula (2) [presenting formula III in D3/D3a, see page 11] and, obviously as a further component one of the isomers of formula (1) (see page 8). Compound 3 is missing in D3/D3a.

D4 discloses all three compounds falling under formula (2) of current claim 1. Representatives of compounds (1) and (2) not mentioned.

D5 discloses the use of the two isomers of formula (1); (1) and (3) not mentioned. Dyes coming close to that of formulas 8,9,10,11 of current claim 2 are mentioned as the red component in the composition.

Finally, none of the documents D2/D2a, D3/D3a, D4, D5 alone or in combination with each other teaches in an obvious way to combine all the necessary components (1), (2) and (3), which are critical to solve the above mentioned problem, to give the claimed blue disperse dye mixture.

Claim 1 and all claims referring back to claim 1 (claims 2-8) are novel and inventive over D1-D5.

VI. D6/D6a [published 17.06.2004] could be relevant in one of the following two cases:

VI.1. The priority document JP-2003-192 345 (which is not available yet for the examiner) is not valid.

**WRITTEN OPINION OF THE
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AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2004/007021

VI.2. In case the applicant enters the regional phase at the EPO:
D6/D6a is regarded as the priority document in the sense of Article 87(4) EPC insofar, that D6/D6a is filed by the same applicant (as well as inventors) and has NOT been withdrawn, abandoned or refused and is published before the filing date 29.06.2004, which obviously is the case.